REMARKS

Claims 1 to 12 are pending in this application. Of these, claims 1, 10, 11 and 12 are independent. Favorable reconsideration and further examination are respectfully requested.

Claims 1 to 12 were rejected under 35 U.S.C. 103(a) over Maskara et al., "Concatenating Sequences for Spread Spectrum Systems", IEEE Transactions on Aerospace and Electronic Systems, pages 342-350, VOL. AES-17, NO. 3, May 1981. Applicants respectfully traverse this rejection.

Independent claim 1 is directed to a method for synchronizing a base station to a mobile station. Claim 1 includes transmitting a signal sequence K(i) that is formed by repeating, n1 times, a second signal sequence element K2(k) of length n2 to form a second signal sequence that is modulated with first signal sequence elements K1(j) of length n1. Claim 1 requires that n1 is equal to n2, and that i, j and k are integers. Independent claims 10, 11, and 12 recite similar limitations to those of claim 1.

Maskara is not understood to disclose or to suggest the features of independent claims 1, 10, 11, and 12, particularly with respect to synchronizing a base station to a mobile station and with respect to the first and second signal sequences having lengths n1 and n2 that are equal.

More specifically, on page 2 of the Office Action, the Examiner asserts that Figure 2C shows a synchronization sequence: "Regarding to claims 1 and 10-12 ...(see figure 2C) (equivalent with "signal sequence K(i) of length n" of claims 1 and 12, with "synchronization sequence" of claims 10 and 11."

Although Maskara describes a method for forming a signal sequence (e.g., a concatenated sequence) from two signal sequence elements, Maskara neither discloses nor suggests that its

method synchronizes a base station to a mobile station, or that the concatenated sequence is for use in synchronization. The caption of Fig. 2C clearly states that the signal sequence is a "4 x 7 concatenated sequence" and Maskara discloses on page 344 that "the resulting concatenated sequence would be used to spread the spectrum of an information bearing signal." Nowhere does Maskara disclose or suggest that the concatenated sequence could be used for synchronizing a mobile station to a base station.

In this regard, the synchronization techniques disclosed by Maskara are those that use either a delay lock loop or a Tau-Dither loop for synchronization. For example, on page 344, Maskara discloses that "the most important aspect of the correlation detection ...is the synchronization of the local code to the received code sequence. The synchronization is achieved by a delay lock loop [4] as shown in Fig. (C) or a Tau-Dither loop [5]. The techniques of synchronization are complex to implement." According to Maskara, using synchronization techniques are disadvantageous due to the complexity of their implementation.

Maksara, furthermore, suggests that the use of concatenated sequences eliminates the need for synchronization. For example, on page 343, Maksara discloses that "The advantage of the TDL type of MFC is that it does not require the generation and synchronization of the local code sequence ... However TDL suffer from the limitation of bandwidth shrinkage and attenuation as its length is increased ... The concatenated sequences described in section II overcome the difficulties of large lengths of TDLs." On page 345, Maskara discloses that the detection scheme relies on a TDL type MFC: "A very important block of the detection scheme ... for the detection of concatenated sequences is the interface network shown in Fig. 3(B) ... the

transfer function of (9) [i.e., the transfer function of the interface network] can be realized using a similar TDL to that used in the MFC shown in FIG. 1(D) ..." The detection of the concatenated sequences is implemented using TDLs and thus do not require synchronization. A person of ordinary skill in the art would not find it obvious to use concatenated sequences disclosed in Maskara as synchronization sequences because the computation advantages provided by the concatenated sequences are disclosed only for concatenated sequences that are used as spread spectrum signals. Furthermore, Maskara suggests that using concatenated sequences eliminates the need for using a synchronization signal. Thus, a person of ordinary skill in the art would not be motivated to us a concatenated sequence as a synchronization signal.

Moreover, with regard to claims 1, 10, 11, and 12, Maskara neither discloses nor suggests that the lengths of the signal sequence elements are equal. On page 3 of the Office Action, the Examiner acknowledges that "Maskara et al does not disclose whether n1 can be equal to n2." However, the Examiner contends that it would have been obvious to implement the concatenated sequence using inner and outer codes of equal length.

In this regard, to establish a prima facie case of obviousness, there must be some suggestion or motivation in the reference itself or in the knowledge generally available to one of ordinary skill in the art to make the proposed modification. "The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

> Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, "[t]he mere fact that the prior art could be so modified would not have made the

modification obvious unless the prior art suggested the desirability of the modification." *In re Laskowski*, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989).

Contrary to the Examiner's assertion that it would have been obvious to one skilled in the art to modify Maskara to set n1 equal to n2, there is nothing in Maskara that suggests the desirability of such a modification. For example, nowhere does Maskara suggest that the signal sequences could be of equal lengths or that there would be advantages to using signal sequences of equal lengths. In every example, Maskara discloses that the signal sequences have different lengths. For example, on page 344, the sequences have lengths of 4 and 7 and on page 346, the sequences have lengths of 7 and 15.

For at least the foregoing reasons, claims 1, 10, 11, and 12 are patentable.

Regarding claim 2, the Examiner acknowledges on page 3 of the Office Action that "Maskara et al does not disclose whether n is equal to 256, and n1=n2=16." However, the Examiner contends that "it would have been obvious for one skilled in the art that Maskara et al invention could be implemented in such a way that n is equal to 256 and n1=n2=16, without affecting the overall system performance.

To a person of ordinary skill in the art, it would not be obvious to modify Maskara such that a concatenated sequence having a length n=256 is formed from signal sequences elements having lengths n1=n2=16. All of the concatenated sequences disclosed in Maskara are less than 256. Furthermore, on page 346, Maskara characterizes the signal-sequence-elements lengths of 15 and 7 as being "maximal" lengths. In all of the examples in Maskara, at least one of the signal sequence elements has a length that is less than 16. Furthermore, there is nothing in

Maskara that suggests the desirability of using sequence-element lengths that are both equal to 16. Thus, claim 2 is not rendered obvious by Maskara.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

REQUEST FOR EXAMINER INTERVIEW

If the foregoing amendments and remarks are not deemed to place the application in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned before issuing another Office Action.

Applicants' attorney can be reached at the address shown below. Telephone calls regarding this application should be directed to 617-521-7896.

Enclosed is a $120.00 check for a one-month Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 12758-006001.

Respectfully submitted,

Date: August 1, 2005

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